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The Ferns of the Lake George Flora, N. Y.

II.

STEWART H. BURNHAM

Osmundaceae

OSMUNDA REGALIS L.

This fern is frequent throughout the region in swamps, damp old fields and woods. May-Aug.

It is often found growing in shallow water about the margin of sphagnum marshes, where it attains the height of 6 feet.

OSMUNDA CINNAMOMEA L.

Low grounds and swampy woods; common. May-June.

A tall fern with a large rootstock, from which spring a circular cluster of fronds. The fertile fronds unroll in the early spring: the sterile do not attain their growth until in the summer. Sometimes confused with Clayton's Fern, when not fruiting: but the base of the stipes retain some of the ferruginous wool: and the sterile pinnae with small tufts of tomentum at their bases, are thicker, darker green, and the segments less obtuse.

The form FRONDOSA (Torr. & Gray) Britton is occasionally met with; the fronds may be sterile below or above or on one side. This fern was first noted in swamps at Cambridge in Lewis C. Beck's "Botany of the Northern and Middle States," 1st ed.: 457. Al-

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bany 1833, where it was wrongly ascribed to *O. Claytoniana*. Prof. Alphonso Wood in early editions of "A Class-Book of Botany," also describes it under the name *O. Claytoniana* and refers to the Cambridge plants: but Dr. John Torrey, in his "A Flora of the State of New York" 2: 503. 1843, describes it as the var. *frondosa*, and says it has been found near Cambridge (Dr. M. Stevenson), as well as at Stillwater (Dr. Fitch). Dr. Stevenson's Cambridge specimens were preserved in an old collection at the N. Y. State Herbarium.

The form *INCISA* (Huntington) Gilbert, with the sterile pinnae more or less incised, has been found at Hampton (F. G. Taylor), Aug. 31, 1908; the woods southeast of Oneida, near Halfway brook; and east of Tripoli. At Tripoli some of the plants approached f. *bipinnatifida* Clute.

OSMUNDA CLAYTONIANA L.

Often growing with the preceding fern: and about as common. May-June.

The form *DUBIA* (Grout) Clute has been met with east of Tripoli. The sterile pinnae take the place of the fertile ones; on the edge of which, imperfect sporangia were visible: and the pinnae were more incised than usual.

Polypodiaceae

ONOCLEA SENSIBILIS L.

Shaded swamps, wet places and low meadows; common. July-Oct.

This fern produces two kinds of fronds; the sterile are triangular and herbaceous, quickly turning black after the first frosts. The fertile are much contracted, with berry-like segments and persist until the following spring. Specimens with the pinnae rather deeply cut

were collected at Clarks Pond, west of Shushan, Sept. 21, 1907.

A form, the var. *obtusilobata* (Schkuhr) Torr., with sterile fronds, bearing a few abortive pinnae is occasionally met with, where the plants have suffered injury. "It was first detected, many years ago by Dr. Jed. Smith, in Salem." Torrey's, "Flora of the State of N. Y." 2: 499. 1843. This fine specimen from Salem is preserved "in herb. Sartwell" at Hamilton College, according to Paine's, "Catalogue of Plants of Oneida County and Vicinity." N. Y. State Cab. Rep't 18: 179. 1865. This form has also been found at Vaughns.

PTERETIS NODULOSA (Mx.) Nieuwl.

Wet woods, usually in alluvial soil along larger streams in thickets; infrequent. July–Oct.

Glens Falls (Hulst); Silver Bay (Kemp); Huletts Landing (Jelliffe); Hague (Mrs. E. Watrous); from French Mt., southern W. Fort Ann and South Bay southward to Round Lake, Coveville and Shushan. Along the Battenkill, near Shushan, fine plants grow; the sterile frond over 5½ feet high and the stipe covered with a bloom. This fern is not so often met with in the western part of the region.

Like the *Osmundas*, the numerous sterile fronds arise from stout ascending rootstocks: but the curious, dark-brown, firm, pinnate fertile fronds, do not appear until late in the season. The fertile fronds persist until the following spring. This fern was formerly known as *Matteuccia Struthiopteris* and *Onoclea Struthiopteris* of American authors.

WOODSIA ILVENSIS (L.) R. Br.

Exposed granitic rocks on mountains; local. July–Oct.

Lake George and vicinity (Mrs. Watrous) (Hulst) (Kemp) (Jelliffe); Ticonderoga, Essex county (I. Eights, in an old collection at N. Y. State herbarium); Dresden Station (Peck); rocks near South Granville (Pember); Willard Mt. (Taylor); DeRidder hill near Schuylerville (Greenalch); South Bay; French Mt.; mountains in W. Fort Ann; Peaked Rock and near Shushan.

Variable. A pretty little fern growing in dense tufts, found usually at higher elevations in the northern part of the region: but sometimes a few dwarf plants are met with in old rocky pastures, at lower altitudes.

WOODSIA OBTUSA (Spreng.) Torr.

Rocky shaded places and old pastures about limestone rocks; infrequent. July-Oct.

Bolton (Peck); Lake George (Hulst) (Kemp); rocks near South Granville (Pember); Shushan (Dobbin); Easton (Taylor); Jonesville, west of Round Lake (Hulst); French Mt.; Hague; Whitehall and South Bay, southward to Fort Ann, Peaked Mt. and Vaughns.

Distinguished from *Filix fragilis*, which it resembles, by its larger fronds, the glandular pubescent stipes and blunt pinnae, and persistent indusia. The fronds are sometimes half evergreen.

The var. *ANGUSTA* Pk., with narrow fronds and pinnae, has been found at Peaked Mt. and at Vaughns.

(*Woodsia glabella* R. Br. was reported as having been found near Huletts Landing, in 1892, by Madge Condit. This rare fern of the higher Adirondacks may occur on Black Mt., Lake George: but these plants were probably referable to some other fern. This fern has also been reported at Pottersville, near Schroon Lake (Mrs. E. B. Lombard): but no specimens have been seen.)

DENNSTAEDTIA PUNCTILOBULA (Mx.) Moore

Moist woods and roadsides; frequent. July-Oct.

A delicate, heavily-scented fern, more often found in newly cleared land at higher elevations. In late autumn, the fronds sometimes turn white.

FILIX BULBIFERA (L.) Underw.

Shaded cliffs and ledges, specially near limestone; frequent. July–Sept.

A handsome graceful fern, with shorter and broader sterile fronds than the long lanceolate fertile ones. The young stipes are often reddish. This fern is usually propagated by the little greenish bulblets, borne loosely on the back of the pinnules among the sori.

FILIX FRAGILIS (L.) Underw.

Shaded rocks and cliffs; common, especially near limestone. June–Aug.

Variable, and usually disappearing by September. It has been found in sandy woods, northwest of Waterford; also on earth in woods near Round Lake.

The form *MAGNASORA* Clute, a dry rock form, not evanescent, with large sori resembling *Polypodium*, has been found at Glens Falls. (B. D. Gilbert herb.) Fern Bull. 9: 65. 1901.

POLYSTICHUM ACROSTICHOIDES (Mx.) Schott

Woods, rocky pastures and roadsides; abundant. Summer-autumn.

Very variable. In very dry open places, the pinnae are nearly entire. Fronds with abortive, reflexed or wrinkled pinnae are sometimes met with in woods. The fertile fronds are contracted at the apex: but occasionally sterile fronds bear sori. The young fronds of this handsome evergreen fern are erect: but become early semi-prostrate. Some plants bear fronds which do not seem as hardy as others, the fertile tip being killed by the first frosts and the frond taking

on a yellowish cast. Sometimes fronds, 1-2 forked at the tip, are found: and on some fronds may be found fish-tailed pinnae.

The var. *INCISUM* Gray, with dark green fronds and pinnae much incised, is found in moist woods.

The form *RECURVATUM* Clute, with crisped bilobed pinnae was found west of Stone schoolhouse, W. Fort Ann, Nov. 23, 1900. A plant was transplanted and continued to thrive until about 1907; when it died.

POLYSTICHUM BRAUNII (Spenner) Fée

Rocky mountain woods; very rare.

Silver Bay (Kemp), Sept. 12, 1902; Hosie gulch, near Hague (Mrs. E. Watrous), June 15, 1904, and June 28 and July 16, 1907. The Hague specimens are deposited in the State Herbarium. N. Y. State Mus. Bull. **167**: 36. 1913.

.A beautiful, but rare New York State fern, with chaffy stipes and rachis.

DRYOPTERIS NOVEBORACENSIS (L.) A. Gray

Moist woods; frequent. July-Sept.

The form **fragrans** (Peck), n. comb., which was later called var. *suaveolens* by D. C. Eaton; was found, near Glens Falls by Mrs. L. A. Millington, in 1875. Bull. Torr. Bot. Club **6**: 97. 1876. D. C. Eaton's, "Ferns of N. Am." **1**: 50. 1879. Dr. Peck describes it in the N. Y. State Mus. Rep't **28**: 84. 1876, as *Aspidium noveboracense*, var. *fragrans*. "Mrs. Millington observes the fronds are very tall, 'sometimes three feet high,' that the sori at length spread over the whole under surface and that there is a marked vanilla-like odor which persists even in the dried specimens."

DRYOPTERIS THELYPTERIS (L.) A. Gray

Swamps, wet woods and rocky pastures; common.

The pinnae are alternate or nearly opposite.

In the woods near Excelsior Spring, Saratoga Spa, July 28, 1870, Isaac H. Hall says, "amongst a large number of plants of *Aspidium Thelypteris* Swartz, I found several with the stipe or rachis enameled, black and shiny, like that of *Adiantum pedatum* L., or of *Asplenium ebeneum* Ait. The blades of the fronds had a somewhat coppery tinge. Some were beginning to fruit, but most showed no sign of fructification. I gathered a dozen or so, but the extreme heat of the sun withered and spoiled them before I could get them in press." Bull. Torr. Bot. Club 1: 30. Aug. 1870.

DRYOPTERIS CRISTATA (L.) A. Gray

Deep old swamps and low thickets: infrequent, but widely scattered.

DRYOPTERIS CLINTONIANA (D. C. Eaton) Dowell

In swampy woods and thickets, with the preceding; frequent. The fronds are much larger and broader than in the crested shield-fern.

The enherbaceous form, var. **Slossonae** (Dav.) n. comb., with large thin fronds, was found Aug. 24, 1900, in low woods, near Halfway brook, southeast of Oneida. Determined by Dr. Geo. E. Davenport, Dec. 30, 1900, who says, "like the enherbaceous form of *Clintonianum* from Vermont that I have been investigating for some time back." This is probably where Dr. Hulst collected the same form in 1900. Dr. Davenport describes this form as *Nephrodium cristatum* Rich., var. *Slossonae* in *Rhodora* 4: 52. March, 1902.

DRYOPTERIS GOLDIANA (Hook.) A. Gray

Damp rich old woods; scarce.

North of Silver Bay (Kemp); Hosie gulch, Hague (Mrs. E. Watrous); Huletts Landing (Jelliffe); Round Lake (W. N. Clute); Easton (Taylor); Inman Pond,

north of Lake Pond and Mt. Hope, W. Fort Ann; northwest Hartford; Devines woods and a few plants in the woods southeast of Vaughns schoolhouse; a few plants, west of Tripoli schoolhouse; north of Hudson Falls, near the King cemetery.

DRYOPTERIS MARGINALIS (L.) A. Gray

Rocky woods and shaded banks; abundant.

The fronds of this beautiful species are evergreen. The plants vary in size and incising of the pinnae. Dwarf fruiting plants, 7 to 11 inches high, are sometimes found on dry rocks.

A form, known as var. *elegans* (John Robins.) Carhart is sometimes met with in rich moist woods. The fronds are very large: and the segments of the pinnae lobed or pinnatifid.

DRYOPTERIS SPINULOSA (Muell.) Ktze.

Moist woods; infrequent.

Lake George (Mrs. S. W. Russell) (Kemp) (Jelliffe) (Hulst); near Lake Desolation (E. A. Burt), 1880; southern W. Fort Ann; woods north and east of Kingsbury; woods north and east of Hudson Falls; Ballston Lake; Vischers Ferry; north of Cambridge; about ponds west of Shushan.

DRYOPTERIS DILATATA (Hoffm.) A. Gray

Blue Mt., Hamilton county, at 3000 feet with *D. intermedia*. R. C. Benedict in *Torrey* 8: 285. Dec. 1908. This fern undoubtedly grows on some of the higher mountains of northwestern Warren county.

DRYOPTERIS INTERMEDIA (Muhl.) A. Gray

Moist and dry woods; abundant.

Very variable. Fronds evergreen, 2-3 pinnate; pinnules more crowded and dissected than in *D. spinulosa*. The fronds become prostrate in the late

autumn. When young, the rachis has a fine granular pubescence. In moist rich old woods, forms occur in which the lower pinnae are broadly unequally ovate.

DRYOPTERIS BOOTTII (Tuck.) Underw.

Moist rich low woods; scarce.

Bear pond, French Mt. (Hulst); Granville (Pember); southeast of Oneida near Halfway brook; north of Glen Lake; southern W. Fort Ann; west of Shushan about Clarks Pond and on Mt. Colfax; north of Cambridge.

Variable. Specimens collected at Podunk Pond, Oct. 17, 1899, have the lower pinnae 2 to 3 inches apart on the rachis. The sterile fronds are evergreen: the fertile nearly so.

DRYOPTERIS CLINTONIANA \times *INTERMEDIA* Dowell

Wilburs Basin, near Saratoga battlefield, Nov. 5, 1907. Determined by Dr. R. C. Benedict, Feb. 6, 1908.

DRYOPTERIS CRISTATA \times *MARGINALIS* Davenp.

Swampy woods north of Cambridge (Dobbin & Burnham), Sept. 17, 1910. Determined by E. J. Winslow, Jan. 23, 1911, who says of *D. Boottii*, growing in the same woods. "*Boottii* has sori near the midvein and indusia glandular. The *cristata* \times *marginalis* has sori more widely separated from the midvein, indusia smooth, and very acuminate tips of pinnae."

HUDSON FALLS, N. Y.

(To be continued)